



Code: 5566

Family: Technical Engineering

Service: Operation and Construction

Group: Engineering, Designing and Structural

Series: Chemical Engineering

CLASS TITLE: ENGINEER OF WATER PURIFICATION

CHARACTERISTICS OF THE CLASS

Under the direction of the Deputy Commissioner, the class manages the operation, maintenance and personnel within the City's two water purification plants, and performs related duties as required

ESSENTIAL DUTIES

- Directs Chief Filtration Engineers responsible for overseeing the treatment, operation, maintenance, and repair of water purification equipment and facilities at an assigned plant
- Directs the organization, staffing and operational activities within the purification plants to ensure the overall effectiveness of water purification treatments and plant conditions
- Directs the collection and testing of water and chemical treatment samples
- Assists in the planning and design of Capital Improvement Projects in the purification plants
- Oversees the monitoring of all state and federal drinking water regulations pertinent to the City's water supply
- Confers with the Deputy Commissioner regarding improvements and expansions at the City's purification plants to meet future demands and regulations
- Travels between the two purification plants and inspects facilities to observe conditions of water treatment and establish standard operating procedures
- Investigates the effects of existing infrastructures on the distribution system
- Develops and ensures adherence to policies and procedures that permits the continuous operation of the purification plants in compliance with City, State and Federal laws, guidelines and regulations
- Recommends areas of research and study to identify potential environmental and compliance issues
- Directs the preparation of the annual operating budget, including personnel services, operations and maintenance, and capital improvement project requirements
- Directs the preparation of technical reports and studies on the improvement in filtration processes, water distribution and water quality standards
- Attends conferences or participates on committees, professional groups and stays abreast of trends and innovations in the field of water treatment plant operations, maintenance and analysis
- Consults with other departments and agencies to coordinate work affecting purification operations

NOTE: *The list of essential duties is not intended to be inclusive; there may be other duties that are essential to particular positions within the class.*

MINIMUM QUALIFICATIONS**Education, Training, and Experience**

- Graduation from an accredited college or university with a Bachelor's degree in Chemical Engineering, Civil Engineering, Mechanical Engineering, Environmental Engineering or a related field of engineering, plus seven (7) years of professional engineering work experience in water purification operations, of which four (4) years are in a supervisory role related to the responsibilities of the position, **OR**
- Graduation from an accredited college or university with a Master's degree or higher in Chemical Engineering, Civil Engineering, Mechanical Engineering, Environmental Engineering or a related field of engineering, plus six (6) years of professional engineering work experience in water purification operations, of which four (4) years are in a supervisory role related to the responsibilities of the position

Licensure, Certification, or Other Qualifications

- A State of Illinois Class "A" Public Water Supply Operator license is required at the time of employment
- A valid State of Illinois driver's license is required

WORKING CONDITIONS

- General office and industrial plant work environment
- Exposure to loud noise
- Exposure to hazardous conditions (e.g., heavy machinery)

EQUIPMENT

- Standard office equipment (e.g., telephone, printer, photocopier, fax machine, calculator)
- Computers and peripheral equipment (e.g., personal computer, computer terminals, hand-held computer)
- Personal protective equipment (e.g., hard hat, shoes, glasses, gloves)
- Scientific calculators

PHYSICAL REQUIREMENTS

- Ability to climb staircases, ladders, and to access multi-level facilities

KNOWLEDGE, SKILLS, ABILITIES, AND OTHER WORK REQUIREMENTS**Knowledge**

Comprehensive knowledge of:

- *water treatment and purification methods, operations, and practices
- *water treatment plants and pumping stations
- *water filtration system maintenance methods
- *chemical and chemical engineering methods, theories, principles, and procedures
- *management and supervisory methods, practices, and procedures
- *safety principles, methods, practices and procedures

Considerable knowledge of:

- *pumping system maintenance methods, practices and procedures

- *operating requirements for industrial facilities

Knowledge of applicable City and department policies, procedures, rules, and regulations

Other knowledge as required for successful performance in the Assistant Engineer of Water Purification

Skills

- *ACTIVE LEARNING - Understand the implications of new information for both current and future problem-solving and decision-making
- *ACTIVE LISTENING - Give full attention to what other people are saying, taking time to understand the points being made, ask questions as appropriate, and not interrupt at inappropriate times
- *CRITICAL THINKING - Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems
- *MONITORING - Monitor and assess performance of one's self, other individuals, or organizations to make improvements or take corrective action
- *MATHEMATICS – Use mathematics to solve problems
- *COMPLEX PROBLEM SOLVING - Identify complex problems and review related information to develop and evaluate options and implement solutions
- *JUDGEMENT AND DECISION MAKING - Consider the relative costs and benefits of potential actions to choose the most appropriate one
- *SYSTEMS ANALYSIS – Determine how a system should work and how changes in conditions, operations, and the environment will affect outcomes
- *SYSTEMS EVALUATION – Identify measures or indicators of system performance and the actions needed to improve or correct performance relative to the goals of the system
- *QUALITY CONTROL ANALYSIS – Conduct tests and inspection of products, services, or processes to evaluate quality or performance

Other skills as required for successful performance in the Assistant Engineer of Water Purification

Abilities

- COMPREHEND ORAL INFORMATION - Listen to and understand information and ideas presented through spoken words and sentences
- SPEAK - Communicate information and ideas in speaking so others will understand
- COMPREHEND WRITTEN INFORMATION - Read and understand information and ideas presented in writing
- WRITE - Communicate information and ideas in writing so others will understand
- REASON TO SOLVE PROBLEMS - Apply general rules to specific problems to produce answers that make sense
- MAKE SENSE OF INFORMATION – Quickly make sense of, combine, and organize information into meaningful patterns
- REACH CONCLUSIONS - Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)

Other abilities as required for successful performance in the Assistant Engineer of Water Purification

Other Work Requirements

- PERSISTENCE – Persist in the face of obstacles on the job
- INITIATIVE – Demonstrate willingness to take on job challenges
- LEADERSHIP - Demonstrate willingness to lead, take charge, and offer opinions and direction
- DEPENDABILITY - Demonstrate reliability, responsibility, and dependability and fulfill obligations
- ATTENTION TO DETAIL - Pay careful attention to detail and thoroughness in completing work tasks
- ANALYTICAL THINKING - Analyze information and using logic to address work or job issues and problems

Other characteristics as required for successful performance in the Assistant Engineer of Water Purification

All employees of the City of Chicago must demonstrate commitment to and compliance with applicable state and federal laws, and City ordinances and rules; the City's Ethics standards; and other City policies and procedures.

The City of Chicago will consider equivalent foreign degrees, accreditations, and credentials in evaluating qualifications.

* May be required at entry.

City of Chicago
Department of Human Resources
September, 2013; April, 2025